

CLAIMS

1. A power converter, comprising:
 - a housing;
 - a first DC bus structure;
 - a second DC bus structure electrically isolated from the first DC bus structure;
 - a circuit electrically coupled between the first and the second DC bus structures;
 - a high frequency capacitor comprising an anode and a cathode, the anode electrically coupled to the first DC bus structure and the cathode electrically coupled to the second DC bus structure; and
 - a bulk capacitor comprising an anode and a cathode, the anode electrically coupled to the first DC bus structure and the cathode electrically coupled to the second DC bus structure.
2. The power converter of claim 1 wherein the first DC bus structure comprises a first DC bus bar comprising a number of terminals and the second DC bus structure comprises a second DC bus bar comprising a number of terminals and wherein the housing comprises a lead frame, the lead frame supporting the first and the second DC bus structures.
3. The power converter of claim 1 wherein the first and the second DC bus structures are received in the housing with at least one terminal of each of the first and the second DC bus structures extending from the housing.
4. The power converter of claim 1 wherein the circuit comprises a number of semiconductor switches and a number of semiconductor diodes electrically coupled as a bi-directional converter circuit.

5. The power converter of claim 1 wherein the high frequency capacitor is a film capacitor.

6. The power converter of claim 1 wherein the high frequency capacitor is an electrolytic capacitor.

7. The power converter of claim 1 wherein the bulk capacitor is a film capacitor.

8. The power converter of claim 1 wherein the bulk capacitor is an electrolytic capacitor.

9. The power converter of claim 1 wherein the high frequency capacitor has a capacitance of approximately 500 μF and the bulk capacitor has a capacitance of approximately 800 μF .

10. A power converter, comprising:

a first housing;

a first DC bus bar comprising a number of terminals, at least a portion of the first DC bus bar received in the first housing with the terminals accessible from an exterior of the first housing;

a second DC bus bar comprising a number of terminals, the second DC bus bar received in the first housing with the terminals accessible from the exterior of the first housing;

a bridge circuit received in the first housing and electrically coupled between the first and the second DC bus bars;

a high frequency capacitor comprising an anode and a cathode, the anode electrically coupled to at least one terminal of the first DC bus bar and the cathode electrically coupled to at least one terminal of the second DC bus bar; and

a bulk capacitor comprising an anode and a cathode, the anode electrically coupled to at least one terminal of the first DC bus bar and the cathode electrically coupled to at least one terminal of the second DC bus bar.

11. The power converter of claim 10 further comprising:
a second housing receiving the first housing, the bulk capacitor, and the high frequency capacitor.

12. The power converter of claim 10 further comprising:
a gate driver board physically coupled to the first housing.

13. The power converter of claim 12 wherein the terminals of the first and the second DC bus bars extend through apertures formed in the gate driver board and the high frequency capacitor is adjacent the gate driver board.

14. The power converter of claim 10 wherein the high frequency capacitor overlies at least a portion of the first housing.

15. The power converter of claim 10 wherein the second housing comprises a cold plate with an inlet aperture and an outlet aperture for cooling of the cold plate.

16. A power converter, comprising:
a first housing;
a substrate received in the first housing, the substrate comprising a number of regions;
a first DC bus bar comprising a first set of terminals, the first DC bus bar received at least partially in the first housing with the first set of terminals accessible from an exterior thereof;

a second DC bus bar comprising a second set of terminals, the second DC bus bar received at least partially in the first housing with the second set of terminals accessible from an exterior thereof;

a number of switches mounted to at least some of the regions of the substrate and electrically coupled to one another to form a bridge circuit electrically coupled between the first and the second DC bus bars;

a first film capacitor electrically coupled across the terminals of the first and the second DC bus bars; and

a second film capacitor electrically coupled across the terminals of the first and the second DC bus bars.

17. The power converter of claim 16 wherein the first film capacitor is disposed in the exterior of the first housing.

18. The power converter of claim 17 wherein the second film capacitor is disposed in the exterior of the first housing.

19. The power converter of claim 18 further comprising:

a first DC interconnect electrically coupling an anode of the first film capacitor to an anode of the second capacitor; and

a second DC interconnect electrically coupling a cathode of the first capacitor to a cathode of the second film capacitor.

20. The power converter of claim 19 further comprising:

a second housing receiving the first housing, the first film capacitor and the second film capacitor.